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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR                 | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|--------------------------------------|---------------------|------------------|
| 10/626,834   | 07/21/2003  | Jean-Marc Karl Edgard Maurice Virgin | HOE-767             | 9246             |
| 20028  | 7590        | 01/12/2006                           | EXAMINER            |                  |
| Lipsitz & McAllister, LLC<br>755 MAIN STREET<br>MONROE, CT 06468 |             |                                      | THOMAS, LUCY M      |                  |
|  |             |                                      | ART UNIT            | PAPER NUMBER     |
|  |             |                                      | 2836                |                  |

DATE MAILED: 01/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                 |  |               |  |
|------------------------------|-----------------|--|---------------|--|
| <b>Office Action Summary</b> | Application No. |  | Applicant(s)  |  |
|                              | 10/626,834      |  | VIRGIN ET AL. |  |
|                              | Examiner        |  | Art Unit      |  |
|                              | Lucy Thomas     |  | 2836          |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 January 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 40-78 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 40-78 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>1/15/2004</u> .   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 50-51, 57, 61-62, 64-65 and 67 are objected to because of the following informalities: Claims 50-51, 57, 61-62, 64-65, and 67 recite the limitation "the detector line." There is insufficient antecedent basis for this limitation in the claims.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 40, 42-44, 46, 49-51, 53-57, 67-71, and 73-76 are rejected under 35 U.S.C. 102(b) as being anticipated by Saito et al. (US 6,243,018). Regarding Claim 40, Saito discloses a line arrangement 1 for electrical systems of vehicles (Figure 1, Column 1, lines 10-12), comprising: an electrical supply line running from a current feed terminal to a current delivery terminal and having at least one current-carrying inner conductor (see conductors inside 3, 4, 5, Column 5, lines 59-61) and at least one protective sheath (see outer part of 3, 4, 5, Column 5, lines 46-47) surrounding the inner conductor, a detector element 2 which runs along the supply line and is formed in such a way that its electrical and/or optical behavior is irreversibly changed when a short circuit originating from the current-

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carrying inner conductor occurs, and an isolating circuit (see 31, 32, 34 in Figure 11) connected to the current feed terminal to isolate the current-carrying inner conductor from a current source when the electrical and/or optical behavior of the detector element changes (Column 1, lines 28-38, Column 2, lines 1-6, 47-56, Column 3, lines 22-23). Saito discloses that the short circuit originating from the current carrying inner conductor and discloses that serious accidents such as a fire in the vehicle may break out in the worst case.

Regarding Claim 42, Saito discloses the line arrangement, wherein the detector element surrounds the supply line (see Figure 1). Regarding Claim 43, Saito discloses the line arrangement, wherein the detector element comprises at least one electrical and/or optical detector line, the electrical and/or optical behavior of which is irreversibly changed when the short circuit occurs. Regarding Claim 44, Saito discloses the detector line runs in the form of a helix (see Figure 19a).

Regarding Claim 46, Saito discloses the line arrangement, wherein portions of the detector line following one another in a longitudinal direction of the supply line and running transversely in relation to the longitudinal direction of the supply line are spaced apart from one another by a spacing which is less than approximately the diameter of the inner conductor (see Figures 19a, 19b). Regarding Claim 49, Saito discloses the line arrangement, wherein the detector line is surrounded by an insulating protective enclosure 6 (Column 3, lines 39-41).

Regarding Claim 50, Saito discloses the line arrangement, wherein the detector element has a carrier on which the detector line is held (see 12 in Figures 3, 4, Column 4, lines 50-54, Column 6, lines 23-27). Regarding Claim 51, Saito discloses the line arrangement, wherein the detector line is disposed in the form of conducting tracks on the carrier (see Figure 4). Regarding Claim 53, Saito discloses the line arrangement, wherein the carrier is given the form of a carrier strip (see 12 in Figure 3). Regarding Claim 54, Saito discloses the line arrangement, wherein the carrier strip runs helically around the supply line (see Figures 4, 5b).

Regarding Claim 55, Saito discloses the line arrangement, wherein the carrier surrounds the supply line at least partially (see Figures 4, 5b). Regarding Claim 56, Saito discloses the line arrangement, wherein the carrier encloses the supply line substantially completely (see Figures 4, 5b). Regarding Claim 57, Saito discloses the line arrangement, wherein the carrier (made of flexible insulating member) forms part of a protective enclosure for the detector line. (Column 6, lines 23-25).

Regarding Claim 67, Saito discloses the line arrangement, wherein the detector line lies in a circuit specific to the detector line (see Figure 2). Regarding Claim 68, Saito discloses the line arrangement, wherein at least one detector circuit is provided which activates the isolating circuit (see lower portion of Figure 11). Regarding Claim 69, Saito discloses the line arrangement, wherein the detector circuit is associated with the current feed terminal (see Figure 11). Regarding Claim 70, Saito discloses the line arrangement, wherein the detector

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circuit is associated with the current delivery terminal (see controller connected to terminal 42 in Figure 13). Regarding Claim 71, Saito discloses the line arrangement, wherein the detector circuit communicates with the isolating circuit by means of an electrical line (see electrical line in Figure 11).

Regarding Claim 73, Saito discloses the line arrangement, wherein a number of detector circuits (see 51-54 in Figure 14) are provided, and the detector circuits communicate with one another sense a change the electrical and/or optical behavior of the detector element. Regarding Claim 74, Saito discloses the line arrangement, wherein the detector circuits communicate with one another via an internal line within the line strand (see Figure 13 and communication lines from 46, 45 to 48). Regarding Claim 75, Saito discloses the line arrangement, wherein the detector circuits communicate with one another via an external line outside the line strand (see external communication lines 119-122 in Figure 15). Regarding Claim 76, Saito discloses the line arrangement, wherein the detector circuits communicate with one another via an electrical line (see connection in Figure 14).

4. Claims 40-43, 47-48, 50-51, 58-62, and 67-69, and 78 are rejected under 35 U.S.C. 102(e) as being anticipated by Maeckel (US 2005/0128661).

Regarding Claim 40, Maeckel discloses a line arrangement 2 for electrical systems of vehicles (Figures 1, 2), comprising: an electrical supply line 6 running from a current feed terminal to a current delivery terminal and having at least one current-carrying inner conductor and at least one protective sheath 4 surrounding the inner conductor, a detector element 18 which runs along the supply line and

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is formed in such a way that its electrical and/or optical behavior is irreversibly changed when an arc originating from the current-carrying inner conductor occurs, and an isolating circuit 12 connected to the current feed terminal to isolate the current-carrying inner conductor from a current source when the electrical and/or optical behavior of the detector element changes (Paragraphs 1, 2, 23, 24, 25). Regarding Claim 41, Maeckel discloses the line arrangement, wherein the detector element is formed in such a way that it irreversibly deteriorates in its electrical and/or optical behavior under the local effect of heat (Paragraph 9, lines 3-10). Regarding Claim 42, Maeckel discloses the line arrangement, wherein the detector element surrounds the supply line (see Figure 3d). Regarding Claim 43, Maeckel discloses the line arrangement, wherein the detector element comprises at least one electrical and/or optical detector line, the electrical and/or optical behavior of which is irreversibly changed when the arc occurs (see Figure 3d, Paragraph 29, lines 1-4).

Regarding Claim 47, Maeckel discloses the line arrangement, wherein the detector line consists of a material which irreversibly changes in its electrical and/or optical behavior when there is local ingress of an amount of heat that can be generated by the arc (Paragraph 9, lines 3-10, Paragraph 11, Paragraph 31, lines 1-7). Regarding Claim 48, Maeckel discloses the line arrangement, wherein the detector line consists of a material, which irreversibly changes in its electrical and/or optical behavior from a threshold temperature, which lies in the range from approximately 130°C to approximately 180°C (Paragraph 16).

Regarding Claim 50, Maeckel discloses the line arrangement, wherein the

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detector element has a carrier 20 on which the detector line is held (Paragraph 25, lines 3-9). Regarding Claim 51, Maeckel discloses the line arrangement, wherein the detector element is disposed in the form of conducting tracks on the carrier (Paragraph 15).

Regarding Claim 58, Maeckel discloses the line arrangement, wherein the carrier consists of a material, which irreversibly changes under the effect of the arc originating from the inner conductor (Paragraph 9, lines 4-11). Regarding Claim 59, Maeckel discloses the line arrangement, wherein the carrier consists of material, which irreversibly deforms under the effect of the arc originating from the inner conductor (Paragraph 9, lines 4-11). Regarding Claim 60, Maeckel discloses the line arrangement, wherein the carrier consists of a material, which irreversibly decomposes under the effect of the arc originating from the inner conductor (Paragraph 9, lines 4-11). Regarding Claim 61, Maeckel discloses the line arrangement, wherein account of its irreversible change under the local effect of the arc, the carrier irreversibly changes the electrical and/or optical behavior of the detector line (Paragraph 11). Regarding Claim 62, Maeckel discloses the line arrangement, wherein the carrier locally interrupts the detector line (Paragraph 11).

Regarding Claim 67, Maeckel discloses the line arrangement, wherein the detector line lies in a circuit specific the detector line (see Figures 1, 2).

Regarding Claim 68, Maeckel discloses the line arrangement, wherein at least one detector circuit 26 is provided which activates the isolating circuit.

Regarding Claim 69, Maeckel discloses the line arrangement, wherein the



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detector circuit is associated with the current feed terminal (see connection of 26 in Figure 2). Regarding Claim 78, Maeckel discloses the line arrangement, wherein the detector circuit detects the occurrence of a potential in the detector line other than that of the detector line (Paragraph 32, lines 1-14).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 45, 52, 63-66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maeckel (US 2005/0128661) in view of Pope et al. (US 5,541,803). Regarding Claim 45, Maeckel does not disclose a detector line run in the form of a meanders. Pope discloses a line arrangement (see Figure 6) for electrical systems, comprising an electrical supply line 61 running from a current feed terminal to a current delivery terminal and having at least one current-carrying inner conductor 63 and at least one protective sheath 62 surrounding the inner conductor, an isolating circuit (see Figure 2), and a detector element 60, wherein the detector line run in the form of a meanders. It would be obvious to those skilled in the art at the time to provide a detector line in the form of a meanders as taught by Pope, to provide improved coverage of the inner conductor and to facilitate easy handling. Claim 52 recites that the conducting tracks run in the manner of meanders on the carrier.

Regarding Claim 63, Pope discloses the line arrangement, wherein the detector element irreversibly changes its electrical and/or optical behavior when it is mechanically damaged (Column 4, 22-32). Claim 64 recites that the detector element changes in its electrical and/or optical behavior when undergoes mechanical damage caused by a mechanical component at a potential other than that of the detector line. Pope's detection element is suitable for mechanical damage of any kind.

Regarding Claim 65, Pope discloses the line arrangement, wherein the detector line irreversibly changes in its electrical and/or optical behavior when the detector element undergoes mechanical damage. Regarding Claim 65, Pope discloses the line arrangement, wherein the detector line irreversibly deteriorates in its behavior with regard to the passing through of electrical and/or optical signals when it undergoes mechanical damage.

7. Claims 72 and 77 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saito et al. (US 6,243,018) in view of Born et al. (US 6,625,880). Regarding Claim 77, Saito does not disclose an optical line (a fiber optic cable). Born discloses a line arrangement for protection of electrical systems (Figures 1-5), wherein the detector circuits 110 communicate with one another via an optical line 100 (Column 1, lines 11-13, 63-67, Column 3, lines 1-35). It would be obvious to those skilled in the art at the time the invention was made to provide an optical line as taught by Born, because optical line provide protection of the system by detecting light and is preferred technology due to its speed, small size, and light weight.

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Regarding Claim 72, Saito does not disclose a light guide (fiber optic cable) for communication between the detector circuit and the isolating circuit. It would be obvious to those skilled in the art at the time the invention was made to provide an optical guide or fiber optic cable for communication between two circuits as taught by Born, because fiber optic cable is a communication means which is faster, smaller and light weight.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lucy Thomas whose telephone number is 571-272-6002. The examiner can normally be reached on Monday - Friday 8:00 AM - 4:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on 571-272-2058. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LT  
January 04, 2006

A handwritten signature in black ink, appearing to read 'Phuong T. Vu', with a stylized, cursive script.

**PHUONG T. VU**  
**PRIMARY EXAMINER**